Stones, BPH, Renal and Prostate Disease Discussed at Jackson Hole

Highlights from the 19th Annual Jackson Hole Urologic Conference
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The Jackson Hole Urologic Conference once again combined an outstanding educational format in a spectacular venue. Conceived almost 2 decades ago by Ralph Hopkins, a practicing urologist from Riverton, Wyo, the Jackson Hole meeting combines an internationally recognized faculty with an equally renowned critique panel. Faculty members (page 192) present a series of papers in their areas of expertise, and the critique panel members (page 192) are afforded sufficient time to critically analyze and evaluate the presentations. This results in some good-natured ribbing but also allows critical assessment of the data presented. Each of the presentations was outstanding, but space limitations allow me to highlight only a few.

Infertility

Dr. Niederberger presented a number of insightful observations on the current status of male infertility. He described methods of sperm retrieval, emphasizing the urologist's role. One of the most outstanding parts of Dr. Niederberger's presentations was his thorough discussion of the ethical issues that are increasingly confronting us. In one of his talks entitled "Technical and Ethical Issues in Posthumous Sperm Retrieval," he not only clarified the methodology, describing electroejaculation as well as surgical approaches, but clearly stated the ethical dilemma that the clinician is faced with in this unfortunate setting, characterizing this as a highly unusual and emotionally charged issue complicated with considerations of consent, contraindications, and postretrieval considerations. Similarly, he discussed future ramifications of genetic manipulation and concluded that human cloning would almost assuredly be a part of the approach in the future.

In presentations on the Internet and World Wide Web, Dr. Niederberger reminded us of the virtually limitless amount of information available on the World Wide Web that is appealing not only to urologists but to our patients. Because of this, all of us need to be increasingly familiar with this resource. The use of the Internet by urologists was reviewed in *Reviews in Urology*, Vol. 1, No. 2. Some websites found to be useful to the practicing urologist are shown in Table 1.

Upper Urinary Tract

Dr. McDougall, while surveying laparoscopic approaches to managing transitional cell carcinoma, discussed the feasibility of nephroureterectomy, but clearly indicated the difficult learning curve associated with this procedure and the prolonged operating times. Her approach for the diagnostic evaluation of upper urinary tract lesions is shown in Table 2. During her presentation on assessing the difficult ureter, Dr. McDougall demonstrated a number of approaches utilizing a variety of instruments to make upper track manipulations possible with a retrograde approach. A list of what she considers essential endourologic equipment is shown in Table 3. Dr. McDougall has essentially abandoned the laparoscopic bladder neck suspension for managing female stress urinary incontinence, but she is developing methodologies of performing a sling procedure, something she believes will become widely applicable in the near future.

Nephrectomy

In her presentation on laparoscopic radical nephrectomy, Dr. McDougall echoed the caveats noted above with respect to ureterectomy. Nevertheless, there does seem to be an increasing role for this procedure and, with improved surgical techniques and new instrumentation, radical nephrectomy may indeed become a more significant option for our patients. In reviewing advances in technologies for tissue approximation, Dr. McDougall discussed some of the limitations with laparoscropic surgery, such as difficulty in joining structures. For the future: laser glues as well as novel stapling devices, which undoubtedly will emerge into general use.

Urolithiasis

Dr. Chandhoke represents a unique individual in contemporary urology.

Reviewed by Michael K. Brawer, MD, Northwest Prostate Institute, Seattle.

Table 1
Some Useful Websites for Urology

- National Library of Medicine: http://www.nlm.nih.gov
- Internet Grateful Med: http://www.igm.nlm.nih.gov
- The Visible Human Project: http://www.nlm.nih.gov/research/visible/visible_human.html
- National Center for Biotechnology Information (NCBI): http://www.ncbi.nlm.nih.gov
- Digital Urology Journal: http://www.duj.com
- UROlog: http://www.urolog.nl
- Urology and Andrology Infobase:http://www.platon.cc.duth.gr/intermed infobase
- Interstitial Cystitis Network: http://www.sonic.net/jill/icnet
- Urology Network: http://www.urology.net.com
- Uronet: http://www.uronet.org/index.html
- Uroweb: http://www.uroweb.org
- The Prostate Cancer Infolink: http://www.comed.com/Prostate
- Prostate Cancer Resources: http://www.cancer.med.umich.edu/prostean.html
- Prostatitis Home Page: http://www.prostate.org
- Urology News: http://uronews.com
- Virgil's Prostate Online: http://www.prostate-online.com

A urologist with a joint appointment in nephrology, he is ideally suited to discuss ramifications of nephrolithiasis. During his discussion of practical metabolic evaluation for the prevention of recurring urolithiasis, he offered guidelines to a simplified approach for current stone forms. Table 4 contains his recommendation for limited (suitable for most) and comprehensive metabolic evaluation.

A discussion on management of lower pole kidney stones, with extracorporeal shock-wave lithotripsy (ESWL) or percutaneous nephrolithotomy, was another subject. While Dr. Chandhoke indicated there was tremendous enthusiasm for both, he took a more balanced approach. His cost analysis concluded that for lower pole stones <2 cm, ESWL was more cost-effective. However, for larger stones, percutaneous approaches were more economical.

Table 2
Diagnostic Evaluation of Upper Tract Lesions

1. Bladder lavage for cytology
2. Retrograde ureteral pyelogram
3. Semirigid ureteroscopy of the distal ureter before guidewire insertion
4. Flexible ureteroscopy of the proximal ureter and collection system
5. With the ureteroscope positioned near the area of interest:
   - Aspiration
   - Saline wash
   - Lesion biopsy with cup forceps, basket, grasper, or brush
   - Saline wash after biopsy
   - Specimen sent fresh to cytopathology

The best approach for management of ureteropelvic junction obstruction remains controversial. Dr. Chandhoke provided a cost analysis based on data from his Stone Center (Table 5). It would appear that the Acucise alone was the most economical approach.

Bladder Substitution

Dr. Studer brought an international flare to the meeting, presenting a number of core papers on orthotopic bladder substitution. Capitalizing on a thorough review of the methodologies he has developed, he presented strategies for patient selection and management. He feels absolute contraindications include compromised renal function, bowel dysfunction, particularly inflammatory bowel disease, and radiation injury, as well as advanced age and mental impairment. Contraindications to orthotopic reconstruction include the need for urethral excision. He made the emphatic point that these patients need to be followed for life, and, if compliance with follow-up is likely to be a problem, then other forms of diversion are more appropriate. In another presentation, he argued for meticulous pelvic lymph node dissection as part of radical cystectomy, using data suggesting improved survival compared with limited dissection. In the absence of a randomized trial, however, his evidence that longevity associated with microscopic metastatic disease cannot be proven.

In terms of the short- and long-term metabolic consequences of continent urinary diversion, Dr. Studer said potential complications include electrolyte imbalance, infection, stone formation, nutritional disturbance, growth retardation, osteoporosis, and potential for malignancy in the neobladder. He underscored the importance of maintaining the terminal ileum and ileocecal valve. Dr. Studer presented a spectacular movie entitled "Tips for Orthotopic Ileal Bladder Substitute Surgery." This clearly illustrated a myriad of technical nuances

that Dr. Studer has pioneered.

Benign Prostatic Hyperplasia

Dr. Studer outlined his experience with transurethral holmium laser resection and second-generation microwave treatment for patients with benign prostatic hyperplasia (BPH). Among 116 patients treated with the holmium contact laser, 12 men required a secondary transurethral resection of the prostate (TURP) in the initial presentation and 12 underwent combined laser-TURP because of prostate size; 5 were lost to follow-up. He observed that among the remaining 87 patients, the medium duration of catheterization was 2 days. Irritable voiding was found in only 3 patients. Fifty-three men were followed for 6 months, and 22 patients were followed more than 12 months. Significant reduction in residual volume was confirmed. The International Prostate Symptoms Score (IPSS) changed from a preoperative median of 20 to 3 at evaluation and 6 and 12 months. Peak urinary flow rate increased from a median of 7 mL/s preoperatively to 15 mL/s postoperatively.

Microwave thermal therapy with the Targis® system was evaluated in 138 men. Local anesthesia was used with intravenous sedation. After median follow-up of 3 months, 8 men required a second course of thermal therapy; 11, TURP; 2, bladder neck incision; and 1, a cystostomy. There were complaints of retrograde ejaculation from 4.4% of men. Among 70 men at 6 and 12 months follow-up, a median decrease in the IPSS from 24 to 3 and peak urinary flow rate increase from 7 to 13 mL/s were found.

In Dr. Kaplan's report on the medical management of BPH, he cited the importance of the Proscar Long-term Efficacy and Safety Study (PLESS) trial indicating significant reduction in the incidence of prostatectomy or urinary retention in the cohort of men receiving 4 years of finasteride (Proscar®) versus placebo. Dr. Kaplan emphasized that α-blockers have emerged as the first-line approach by the majority of clinicians to the management of lower urinary tract symptoms in patients with presumed BPH. He mentioned the appeal of tamsulosin (Flomax®), a generally well tolerated agent, as a more selective α_1-antagonist in the cohort of men who have bothersome side effects with the less selective blockers. We await the results of atrial randomizing men to tamsulosin versus terazosin (Hytrin®).

Dr. Kaplan voiced concern during his discussion of minimally invasive alternative therapy for BPH that the initial enthusiasm associated with these procedures often has not being realized with long-term follow-up. The transurethral needle ablation

Table 3
Essential Endourologic Equipment

Guidewires
0.035 in, 145-cm Bentson TFE-coated (15 cm) floppy tip guidewire
0.035 in, 150-cm Terumo guidewire (straight and angled 40 degree tip) with 3 cm flexible tip
Torque device for 0.025 to 0.038 in guidewire
0.035 in, 145-cm 6 cm soft tip Amplatz set superstiff guidewire
0.035 in, 260-cm TFE-coated straight exchange guidewire

Catheters and Related Equipment
5F 100-cm polyethylene angiographic catheters
8F/10F coaxial dilation stylet and safety wire introducer sheath
7F, 11.5-mm occlusion balloon catheter
10 cc LeVeen inflator with pressure gauge
5.5F, 40-cm Kumpe access catheter
Touhy-Borst sidearm adaptor
SURSEAL II endoscopic seal with side arm adaptor
Automatic high pressure surgical irrigation pump

Table 4
Limited and Comprehensive Metabolic Evaluation

Limited Metabolic Evaluation
1. Serum calcium, sodium, potassium, BUN, creatinine, carbon dioxide, chloride
2. Two random 24 hour urine analyses for volume, creatinine, calcium, oxalate, uric acid, citrate, sodium

Comprehensive Metabolic Evaluation
1. Two random 24 hour urine analyses for volume, creatinine, calcium, oxalate, uric acid, citrate, sodium, potassium, BUN, phosphate, magnesium
2. One week of low calcium, low oxalate, low sodium, and low purine diet followed by another 24 hour urine analysis on the restricted diet including serum calcium, sodium, potassium, BUN, creatinine, carbon dioxide, chloride
3. Calcium load test:
   6 AM to 8 AM (2 hour) – Fasting urinary Ca/Cr ratio
   8 AM – 1 g oral Ca load (45 mL neocalcium gluconate)
   8 AM to 10 AM – urinary Ca/Cr ratio
   10 AM to Noon – urinary Ca/Cr ratio

approach does provide some encouraging early data. Dr. Kaplan also was supportive of the use of microwave by either the Prostatron or Targis systems, although he again echoed the need for longer term trials. With respect to visual laser ablation of the prostate, Dr. Kaplan was concerned with the significant irritative voiding symptoms associated with this procedure. Interstitial laser coagulation has gained increased attention. It was approved by the FDA, and encouraging European data have been reported with this technology. Finally, electrovaporization continues to have its advocates. Its greatest appeal may be the fact that it utilizes modified TURP equipment, resulting in significant cost savings.

Dr. Kaplan concluded that for urologists and patients to understand the utility of alternative methods of BPH treatment, uniform criteria must be established. These should include standardized inclusion and exclusion requirements, parameters of follow-up, and length of follow-up. If these 3 simple principles are adhered to, the confusions generated at national meetings and in the literature would be significantly decreased.

Stress Incontinence

For managing female stress urinary incontinence, Dr. Kaplan advocates a relatively simple workup, including a careful history. He feels the majority of urologists do not need to invoke invasive imaging or functional studies. He went on to provide a summary of the therapeutic options, including pelvic floor exercises, electrical stimulation, pharmacologic agents, α-agonists, imipramine, estrogen, urethral suspension, urethral sling, and bulking therapy with injectables.

Chronic Prostatitis

Dr. Kaplan has been one of the early pioneers in the use of sophisticated urodynamic evaluation of chronic prostatitis. In an evaluation of 137 men undergoing formal urodynamic evaluation for voiding symptoms other than those related to BPH, he observed pseudodyssynergia (voluntary closure of the membranous urethra during voiding) in the majority. Of these patients, 54% had primary vessel neck obstruction, and 17% had impaired bladder contractility. Intriguingly, 49% had detrusor instability. He concluded that young men with chronic voiding dysfunction frequently have urodynamic abnormalities. Of course, the etiology for these remains obscure in the majority.

Pediatric Problems

For vesicoureteral reflux, Dr. Canning asked the questions: Who needs surgery and who doesn't? He provided important guidelines based on radiographic imaging and medical presentation to make the therapeutic decision. Because the majority of these patients are identified in utero, the opportunity for early intervention and/or monitoring is readily available.

Dr. Canning reviewed major points in the differential diagnosis of pediatric acute scrotum, which include spermatic cord torsion, torsion of the appendix, testis, or appendix epididymis, hydrocele and hernia, epididymitis, Henoch-Schönlein purpura, idiopathic scrotal edema, and other sources of swelling, including insect bites, tumor, and scrotal extension of intra-abdominal problems. In the initial evaluation, he stressed the importance of ruling out spermatic cord torsion and incarcerated hernia. There has been a good deal of discussion on the lack of urgency of infantile orchidopexy in the face of in utero torsion. Dr. Canning provided an overview of surgical approaches for hypospadias and shared a number of technical nuances with respect to treatment of postoperative problems. In this regard he feels that the most common causes for fistula are turbulence, poor skin coverage, or inadequate blood supply. Urethral diverticulum, he believes, is associated with too capacious a flap, turbulence, or distal stricture.

In his review of ureteropelvic junction obstruction, Dr. Canning noted that, in earlier times, early interven-

Table 5
Computation of Total Treatment Cost With Various Primary Treatment Options for the Management of UPJ Obstruction

Treatment	TSR days (No.)	Hospital charges ($)	Facility charges ($)	Professional	Total charges ($)	TTC $
Pyeloplasty	0.95	5	12,549	3,893	16,169	17,264
Endopyelotomy	0.85	3.5	13,248	4,661	17,264	20,415
Acucise	0.75	0.67	6,708	3,853	10,354	14,740
Stent+Acucise	0.75	0.67	9,710	4,671	14,174	17,718

UPJ, ureteropelvic junction; TSR, primary treatment success rate; TTC, total treatment cost.

tion was performed in the majority of patients. More recently, aggressive monitoring has resulted in avoiding surgery in a large number of patients.

Oncologic Management

Dr. Studer discussed adjuvant chemotherapy for patients with high-risk clinical stage 1 nonseminomatous germ cell tumor. Fifty-nine men with at least 1 risk factor for recurrence were treated with 2 cycles of adjuvant chemotherapy following radical orchidectomy. Therapy consisted of cisplatin, vinblastine, and bleomycin initially and subsequently cisplatin, etoposide, and bleomycin. The median follow-up was 65 months. There was no mortality and no cancer recurrence. At least 1 pregnancy was achieved among 11 patients reporting, and 88% of 25 men had normal sperm counts. He concluded that 2 cycles of adjuvant chemotherapy in high-risk patients offer a significant likelihood of obviating subsequent recurrence with acceptable toxicity.

Dr. Zincke updated the Mayo Clinic experience in urologic oncology. In an interesting study of the potential conservative management of small solid renal masses, Dr. Zincke reviewed 106 cases. Overall, 14% of patients had benign tumors. Of those patients with a mass <4 cm, the rate of benign findings on final pathology rose to 22%. Of note: More than 18% of the masses <4 cm were oncocytomas. Dr. Zincke's advice: When confronted with a small solid renal mass, intraoperative needle biopsy may be an attractive option in determining who should undergo nephron-preserving surgery versus radical nephrectomy. The importance of reliability on the frozen section diagnosis was paramount in his discussion. When this was performed in the Mayo Clinic series, the accuracy was >75%. In approximately 15% of cases, the tissue obtained was inadequate to allow for a definitive diagnosis. The positive predictive value for carcinoma was greater than 94%. However, approximately 5% of all malignant tumors with adequate tissue for evaluation were felt on frozen section to reveal benign histology. The overall accuracy was between 69% and 73% (2 different pathologic observers). Dr. Zincke concluded that this performance is inadequate to render surgical treatment decisions based on intraoperative needle biopsy currently.

Dr. Zincke reviewed the impact of margin positivity on outcomes when comparing pathologic T2 versus T3 carcinoma of the prostate managed with radical prostatectomy. He reviewed 842 men with positive margins who did not receive adjuvant therapy at the Mayo Clinic. PSA failure was observed in 217. Predictors of failure that achieved statistical significance included the Gleason grade (relative risk, 1.37), serum PSA level preoperatively (relative risk, 1.73), and nondiploid DNA (relative risk, 1.36). A positive surgical margin at the apex or at the urethra was associated with treatment failure (relative risk, 1.44). However, margin positivity at the bladder base, anterior and posterior, did not provide a statistically significant prediction of failure. Adjuvant treatment either with androgen suppression or radiation therapy did not result in better cost-specific survival.

Dr. Zincke discussed the salvage approaches for failure after radiation therapy for prostate cancer. He concluded that, in general, local disease resistance after definitive radiation therapy was associated with a poor prognosis. He stated that there is no definitive therapy for such patients. In his practice, he reserves androgen deprivation for those who are deemed to be at high risk for systemic disease. While he said that the performance of exenterative procedures in men with poorly differentiated carcinoma provided little clinical benefit (75% of these men progressed within 2 years), he did recommend salvage prostatectomy in certain carefully selected patients. Dr. Zincke stated that not more than 5% of men are suitable candidates. In his series of 108 such patients undergoing attempted salvage surgery, organ confined disease was found in 39%. Nodal metastases was noted in 18%. Cause-specific survival was 70% at 10 years. However, only 43% had no evidence of disease progression. Dr. Zincke noted that although salvage prostatectomy gen-

Key words

Infertility • Nephrolithiasis • Benign prostatic hyperplasia (BPH) • Incontinence, urinary • Ureteropelvic junction obstruction • Cancer, prostate

Main Points

- In terms of cost-effectiveness, ESWL is more economical than a percutaneous approach for lower pole kidney stones <2 cm, but the reverse is true for larger stones.
- In the management of lower urinary tract symptoms in patients with BPH, many clinicians are looking to α-blocking agents.
- Uniform criteria for management of BPH are needed, including requirements for inclusion and exclusion, parameters of follow-up, and length of follow-up.
- In evaluating the pediatric patient for acute scrotum, it is important to rule out spermatic cord torsion and incarcerated hernia.
- Following definitive radiation therapy for prostate cancer, local disease resistance is associated with a poor prognosis.

1999 Jackson Hole Urologic Conference

Faculty
Included were:
Douglas A. Canning, MD, Director, Division of Urology and Assistant Professor, Pediatric Urology, Children's Hospital of Philadelphia
Paramjit S. Chandhoke, MD, Professor of Urology and Renal Medicine, University of Colorado
Steven A. Kaplan, MD, Professor and Vice Chairman, Department of Urology, Columbia Presbyterian Medical Center
Elspeth M. McDougall, MD, Associate Professor of Urologic Surgery, Washington University Medical School
Craig S. Niederberger, MD, Assistant Professor and Chief of Andrology, University of Illinois
Urs E. Studer, MD, Professor and Chairman, Department of Urology, University of Bern, Switzerland
Horst Zincke, MD, Professor of Urology, Mayo Medical School

Critique panel
Included were:
David A. Bloom, MD, Professor of Urology, University of Michigan
Ralph V. Clayman, MD, Professor of Surgery and Chief of Pediatric Urology, University of Michigan
Jay Y. Gillenwater, MD, Professor, Department of Urology, University of Virginia School of Medicine
Jack W. McAninch, MD, Professor of Urology, University of California at San Francisco School of Medicine
Randall B. Meacham, MD, Associate Professor of Surgery/Urology, University of Colorado Health Sciences Center
Michael K. Brawer, MD, Director, Northwest Prostate Institute

erally was well tolerated, there was significant associated morbidity (rectal injury in 6%; bladder neck contraction in 21%; and urinary incontinence in 51%, defined as wearing any pads). Obviously, there is a pressing need for new therapeutic strategies for these patients. □

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When coupled with fPSA (good kallikrein), hK2 (bad kallikrein) as the ratio hK2/fPSA, the reduction in the number of unnecessary biopsies without decreasing the detection of cancer was better than that seen by %fPSA alone. This assay has immediate clinical applicability and should see its way to our armamentarium soon. □

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